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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/892,997	06/28/2001	Sin Ho Kang	8733.484.00	6417

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EXAMINER

ANYASO, UCHENDU O

ART UNIT	PAPER NUMBER
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2675

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/892,997

Applicant(s)

KANG ET AL.

Examiner

Uchendu O Anyaso

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. **Claims 1-33** are pending in this action.

Claim Rejections - 35 USC ' 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 1, 4-6, 13-17, 21-33** are rejected under 35 U.S.C. 102(e) as being anticipated by *Tone* (U.S. Patent 6,046,712).

Regarding **independent claims 1, 13, 21 and 29**, and for **claim 22**, *Tone* teaches an apparatus for providing a gamma voltage correcting apparatus for a liquid crystal display (column 17, lines 60-62; column 59-67, figure 17 at 615a) wherein video data is corrected by a preset gamma voltage to display an image entering desired values for the x- and y-coordinate data Xn and Yn to facilitate the operation of gamma correction (column 14, lines 1-15, figure 16-19 at 615).

Furthermore, *Tone* teaches how the apparatus comprises a memory means by external data RAM 403 for storing gamma correction for controlling the gamma voltage for each of at least two modes by teaching how the data entry unit 615 enters data to the external data RAM

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403 via the external CPU, which activates the mode change signal and the grayscale level such that users can use the data entry unit 615 to write gamma correction data in the external RAM 403 (column 13, lines 28-44, figure 15 at 403, 615).

Also, Tone teaches a control means by teaching CPU 513 which activates the mode change signal and the grayscale level such that users can use the data entry unit 615 to write gamma correction data in the external RAM 403 (column 13, lines 28-44, figure 15 at 403, 615).

Furthermore, Tone teaches a multi-channel gamma voltage generator for responding to the gamma data for a mode selected by the control means to generate n gamma voltages (wherein n is an integer) having a different voltage level indicated by the gamma data for the selected mode by teaching a gamma correction device 400 with external RAM 403 that includes a plurality of grayscale level correction groups wherein each of the grayscale level data sets has a different number n which is the number for dividing the grayscale level range (column 12, lines 10-36, figure 13 at 300, 400).

Regarding **claims 4 and 5**, in further discussion of claim 1, Tone teaches how gamma data for the selected mode by teaching a gamma correction device 400 with external RAM 403 that includes a plurality of grayscale level correction groups wherein each of the grayscale level data sets has a different number n which is the number for dividing the grayscale level range (column 12, lines 10-36, figure 13 at 300, 400).

Regarding **claim 6**, in further discussion of claim 1, Tone teaches how the memory means and the control means are integrated into a single integrated circuit (figure 13 at 400, 312, 403).

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Regarding **claims 14-17, 23-28 and 30-33**, in further discussion of claims 13, 21 and 29, Tone teaches a gamma correction device 400 with external RAM 403 that includes a plurality of grayscale level correction groups wherein each of the grayscale level data sets has a different number n which is the number for dividing the grayscale level range (column 12, lines 10-36, figure 13 at 300, 400).

4. **Claims 9-12 and 18-20** are rejected under 35 U.S.C. 102(e) as being anticipated by *Evanicky* (U.S. Patent 6,611,249).

Regarding **independent claims 9, 18**, Evanicky teaches an apparatus for providing a gamma voltage correcting apparatus for a liquid crystal display wherein a liquid crystal pixel LCD (column 2, lines 62-65) is arranged at each intersection between data lines and gate lines (column 7, lines 18-23) and video data is corrected by a preset gamma voltage to display an image by adjusting the gamma values of the RGB colors (column 4, lines 12-18).

Furthermore, Evanicky teaches how the apparatus comprises a memory means for storing gamma data by teaching a color lookup table for providing gamma correction to the image data (column 3, lines 52-54) in which color temperature correction data for correcting a color temperature characteristic of an input image is set in correspondence with a gray level value of the input image (figure 15 at 940, 950, 960, column 17, lines 64 through column 18, lines 1-14).

Furthermore, Evanicky teaches the connectivity between memory means (13-15) and serial port 18 for accessing the lookup table within the graphics controller color LUTs 730 of

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serial port 18 in accordance with the gray level value of the input image to read out the color temperature correction data corresponding to the gray level value of the input image (column 13, lines 60 through column 14, lines 1-9, figures 1, 10 at 13-15, 18, 730).

Furthermore, Evanicky teaches data driving means for driving the data lines using the color temperature correction data from the memory control means column 17, lines 64 through column 18, lines 1-14; see also figure 7 at 530a).

Regarding **claim 10**, in further description of claim 9, Evanicky teaches a row driver 530b for sequentially applying a scanning pulse to the gate lines to drive the gate lines (figure 7 at 530b).

Furthermore, Evanicky teaches a timing controller (figure 7 at 520) for supplying the input image to the memory control means and for applying a desired timing control signal to the row driver (figure 7 at 520, 530b).

Regarding **claims 11, 12, 19 and 20**, in further description of claims 9 and 18, Evanicky teaches how the color temperature correction data is measured after controlling the input image such that a color temperature of a displayed image on the liquid crystal display maintains approximately 6500 K (figure 6, column 10, lines 56-59; column 11, lines 5-14, figure 5).

Claim Rejections - 35 USC ' 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 2, 3, 7 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Tone* (U.S. Patent 6,404,512) in view of *Hiroki* (U.S. 6,771,238).

Regarding **claims 2 and 3**, in further discussion of claim 1, *Tone* teaches a gamma correcting apparatus for a liquid crystal display (column 14, lines 1-15, figure 16-19 at 615).

However, *Tone* does not teach how the LCD comprises a column driver for correcting the video data using the gamma voltage from the multi-channel gamma voltage generator and supplying the corrected video data to the data lines. On the other hand, *Hiroki* discloses an active matrix display device, comprising a plurality of pixels arranged in a matrix form a first driver circuit connected to scanning lines and a second driver circuit connected to signal lines (column 4, lines 29-35) wherein the video signal processing circuit 20 mainly performs gamma correction such that the processed video signal is inputted from the source driver circuit 13 through the signal line 18 to the pixel matrix area 11, thus applied to the pixel electrode of the liquid crystal cell 15 (see column 1, lines 66 through column 2, lines 1-15).

Thus, it would have been obvious to a person of ordinary skill in the art to combine *Tone* and *Hiroki* because while *Tone* teaches how a CPU 513 activates a mode change signal and the grayscale level such that users can use the data entry unit 615 to write gamma correction data in the external RAM 403 (column 13, lines 28-44, figure 15 at 403, 615), *Hiroki* teaches how the

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LCD comprises a column driver for correcting the video data by performing gamma correction and supplying the corrected video data to the data lines (see column 1, lines 66 through column 2, lines 1-15). The motivation for combining these inventions would have been to provide a high quality display device (column 3, lines 15-21).

Regarding **claims 7 and 8**, in further discussion of claim 2, Hiroki discloses an active matrix display device, comprising a plurality of pixels arranged in a matrix form a first driver circuit connected to scanning lines (column 4, lines 29-35) wherein a timing controller via the video processing circuit 110 facilitates the supply of red, green and blue digital video data to the column driver and for applying a desired timing control signal to the row driver (see column 5, lines 32-62).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 6,256,010 to *Chen et al* for a dynamic correction of LCD gamma curve.

U.S. Patent 6,137,462 to *Kim* for a liquid crystal driving circuit.

U.S. Patent 5,872,556 to *Rackley et al* for a RAM based YUV-RGB conversion.

U.S. Patent 6,570,611 to *Satou et al* for an image display.

Contact Information

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Uchendu O. Anyaso whose telephone number is (703) 306-5934. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Saras, can be reached at (703) 305-9720.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Uchendu O. Anyaso

09/28/2004


CHANH NGUYEN
PRIMARY EXAMINER